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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,518	01/21/2004	Yuichi Toriumi	118401	1110

25944 7590 02/22/2007
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EXAMINER

HOLTON, STEVEN E

ART UNIT PAPER NUMBER

2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,518	TORIUMI ET AL.	
	Examiner	Art Unit	
	Steven E. Holton	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Morita (USPgpPub: 20020190974).

Regarding claims 1 and 15, which are drawn to a device and associated method of operation, Morita discloses a display device driving method wherein the display can operate in a partial display mode or a full display mode. The partial display mode includes "a partial mode setting register which sets the scanning lines either a normal display mode... or a partial non-display mode" (Fig. 18, element 150; paragraphs 226-227), "a line driver circuit including an operational amplifier section which drives at least one of the data lines based on the drive voltages, and a partial non-display voltage output section which drives at least one of the data lines based on the partial non-display voltage" (Figs. 13a-13c; paragraphs 197-201). When the display of Morita is being operated the partial display mode control section transmits data using the operational amplifier to rows that are designated in the regular display mode and stops operation of the amplifier section and transmits the partial non-display voltage to rows designated as non-display (paragraphs 198-201 and 305-306). The Examiner notes that Morita does not expressly disclose naming a front drawing row and storing the

value within a register; however, for a display to know the locations of a display region and a non-display region would inherently have some method of storing information about the display and non-display areas. Without values used to distinguish between display and non-display regions the display would be unable to determine what portions of the display are driven with image data to be displayed and the portions driven using the non-display voltage. Because, Morita is able to determine which areas are display regions and which areas are non-display regions, there is inherently some location where drawing row information is stored. The storage device used to store the information corresponds to the 'front drawing row designation register'.

Regarding claims 2 and 16, Morita discloses the partial mode setting register having a plurality of blocks that divide the scanning lines (Fig. 18, elements Part1, part2, etc.; paragraphs 226-227). Morita further discloses enabling the operational amplifier when in a display region and disabling the operational amplifier and outputting a non-display voltage when in a non-display region (paragraphs 198-201 and 305-306).

Regarding claims 13 and 14, Morita discloses a display device with scanning lines (Fig. 1, element Gn), data lines (Fig. 1, element Sm), a plurality of pixels (Fig. 1, elements 22, 24, and 26), a display driver as in claim 1 (Fig. 1, element 30), and a scanning driver (Fig. 1, element 50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7, 8, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita.

Regarding claims 7, 8, 21 and 22, as discussed above Morita discloses all of the limitations except "the partial non-display voltage is a voltage based on a most significant bit of the gray-scale data." Morita discloses the partial non-display voltage is a voltage level selected to display a preferred level of light or dark on the liquid crystal display. At the time of invention it would be a matter of design choice for one skilled in the art to choose the partial non-display voltage and that voltage could be based on the most significant bit of the gray-scale data or any other bit of the data depending on the equivalent bright or dark level desired from the display when in non-display mode.

4. Claims 3-6, 9-12, 17-20, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Nakajima et al. (USPN: 6791539), hereinafter Nakajima.

Regarding claims 3, 4, 17, and 18, as discussed above Morita discloses all of the limitations except, "a drawing row counter which increments a drawing row counter value based on a horizontal synchronization signal which defines a horizontal scanning

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period, wherein the drawing rows including the front drawing row are determined by using the drawing row counter value.”

Nakajima discloses a method of driving a display device with a partial non-display mode and a full display mode. Nakajima uses a horizontal counter to count the rows being used in the display (Fig. 4, element 41) and using counted value in the horizontal counter determines what rows are being used for normal drawing and which rows are being used for non-display areas (col. 4, line 26 – col. 5, line 30; col. 6, lines 18-25; col. 7, lines 4-39).

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Morita with Nakajima to produce a display with a partial display mode and a full display mode. The clock counting method of Nakajima to count rows to determine the location of non-display regions and display regions could be used with the method of Morita of turning off the operational amplifier in non-display regions and turning on the operational amplifier in display regions. The motivation for doing so would have been to provide “a partial display mode with a simple structure and reduction in power consumption (Nakajima; col. 1, lines 57-60)”. Thus, the combination of Morita and Nakajima would produce a device as specified in claims 3, 4, 17, and 18.

Regarding claims 5, 6, 19, and 20, Nakajima discloses, a counter that counts based on the row synchronization signal and the vertical synchronization signal (Fig. 4, element 42) and a comparator that compares a drawing row value with the back porch counter (Fig. 4, element 47) when the count matches the drawing row value the display switches between non-display areas and display areas based on the number indications

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(col. 6, line 64 – col. 7, line 39). The vertical counting circuit of Nakajima corresponds to the back porch circuit counting rows until a specific value is reached and causing the display to operate in partial display mode or display mode based on the counted value.

Regarding claims 10-12 and 23-26, Morita discloses the partial non-display voltage is a voltage level selected to display a preferred level of light or dark on the liquid crystal display. At the time of invention it would be a matter of design choice for one skilled in the art to choose the partial non-display voltage and that voltage could be based on the most significant bit of the gray-scale data or any other bit of the data depending on the equivalent bright or dark level desired from the display when in non-display mode.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

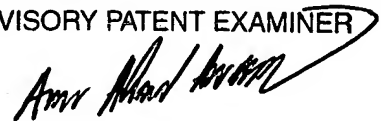
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
February 15, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", is written over a large, stylized, handwritten flourish or checkmark.